

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketthrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) A wireless local area network system comprising;
a wireless local area network master station for supporting communication between satellite stations belonging to ~~the~~a master station, and one or more wireless local area network satellite stations, wherein the satellite station in the relevant local area network comprises
an antenna for dynamically changing a directivity characteristic when receiving electric waves from the master station;
a control frame transmitting ~~means for unit~~ transmitting control frames prior to the commencement of communication; and
an antenna directivity characteristic controlling ~~means for unit~~ determining such a directivity characteristic that the receiving electric field intensity of a carrier wave transmitted from the master station when receiving the relevant control frame may become a maximum by changing the directivity characteristic of said antenna, and
the master station in the relevant local area network system comprises a carrier wave transmitting ~~means for unit~~ starting to transmit carrier waves when receiving said control frame, and
wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

2. (currently amended) A wireless local area network system comprising;
-a wireless local area network master station for supporting communication between satellite stations belonging to ~~the~~a master station, and a plurality of wireless local area network satellite stations, wherein the satellite station comprises;
an antenna directivity characteristic adjusting ~~means for unit~~ adjusting the antenna directivity characteristic of a receiving antenna so that the receiving electric field intensity of electro-magnetic waves transmitted from the master station becomes a maximum, and

the master station comprises electro-magnetic wave transmitting ~~means for unit~~ transmitting electromagnetic waves with such intensity as to enable a satellite station to detect at least said receiving electric field intensity while the directivity characteristic of the relevant receiving antenna is adjusted in the satellite station, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

3. (previously presented) A transmitter-receiver for communicating with another party in a wireless local area network system provided with an antenna, the directivity characteristic of which can be dynamically changed when receiving electric waves, comprising:

a control frame distinguishing means for unit distinguishing a control frame transmitted from said communication partner from a data frame prior to the commencement of communication; and

a carrier wave transmitting means for unit starting to transmit a carrier wave so that said communication partner may determine such a directivity characteristic that the receiving electric field intensity of said antenna may become a maximum, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

4. (previously presented) The transmitter-receiver according to claim 3, wherein the antenna provided for said communication partner is an active phased planar-array antenna.

5. (currently amended) The transmitter-receiver according to claim 3, wherein said carrier wave transmitting ~~means unit~~ makes the transmitting power of the carrier waves less than the transmitting power at the time of a normal data frame when receiving said control frame.

6. (currently amended) A method for optimizing communication quality in a wireless local area network system comprising a master station for supporting communication between satellite stations belonging to the master station, comprising the steps of:

enabling the relevant satellite station to perform the steps of:

transmitting a control frame to a communication partner prior to the

commencement of communication; and

determining such a directivity characteristic that the receiving electric field intensity of a carrier wave transmitted from the master station in the relevant local area network may become a maximum when receiving said control frame by changing the directivity characteristic of an antenna, the directivity characteristic of which can be dynamically changed when receiving said control frame; and

enabling the master station in the relevant local area network system to perform the step of starting to transmit a carrier wave when receiving said control frame, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

7. (currently amended) ~~The A~~ method for optimizing communication quality in a wireless local area network system comprising a master station for supporting communication between satellite stations belonging to the master station, comprising the steps of:

enabling the satellite station to perform ~~the step of adjusting of~~ the antenna directivity characteristic of a receiving antenna so that the receiving electric field intensity of electro-magnetic waves transmitted from the master station may become a maximum; and

enabling the master station to perform ~~the step of transmitting of~~ electro-magnetic waves with such intensity as to enable a satellite station to detect at least said receiving electric field intensity while the directivity characteristic of the relevant receiving antenna is adjusted in the satellite station, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

8. (currently amended) A method for optimizing communication quality of a transmitter-receiver for communicating with another party in a wireless local area network system provided with an antenna, the directivity characteristic of which can be dynamically changed when receiving electric waves, comprising the steps of:

when receiving control frames transmitted from a communication partner prior to the commencement of communication, starting to transmit a carrier wave so that said communication partner may determine such a directivity characteristic that the receiving electric field intensity of said antenna may become a maximum, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

9. (new) A wireless local area network system comprising:

a wireless local area network master station for supporting communication between satellite stations belonging to the master station, and one or more wireless local area network satellite stations, wherein the satellite station in the relevant local area network comprises

an antenna for dynamically changing a directivity characteristic when receiving electric waves from the master station;

control frame transmitting means for transmitting control frames prior to the commencement of communications; and

antenna directivity characteristic controlling means for determining such a directivity characteristic that the receiving electric field intensity of a carrier wave transmitted from the master station when receiving the relevant control frame may become a maximum by changing the directivity characteristic of said antenna, and

the master station in the relevant local area network system comprises carrier wave transmitting means for starting to transmit carrier waves when receiving said control frame, and

wherein directions of radiating directivity characteristic can be freely changed on a hemispherical plane of an antenna plane by changing each power feeding phase using phase shifters.

10. (new) A method for optimizing communication quality for communicating with another party in a wireless local area network system provided with an antenna having a hemispherical plane of an antenna plane, power feeds and a directivity characteristic which can be dynamically changed when receiving electric waves, comprising:

allowing adjustment of the directivity characteristic of the antenna until a received electric field intensity is substantially a maximum, and

allowing the directivity characteristic of the antenna to be changed on the hemispherical plane by changing power feed phase.